

WHAT IS CLAIMED IS:

1           1.     A method of forming an electrical connection between two devices,  
2     comprising:  
3                 bonding an interconnection on a first contact pad of a first component,  
4     wherein said interconnection comprises  
5                 a conductive polymer comprising a polymer component and a conductive  
6     component; and,  
7                 a first solderable cap disposed in contact with said conductive polymer;  
8     and,  
9                 soldering said first solderable cap to a second contact pad of a second  
10    component.

1           2.     The method of claim 1, wherein said polymer component comprises a  
2     thermoplastic polymer, a copolymer, or a blend, and said conductive component  
3     comprises electrically conductive particles.

1           3.     The method of claim 2, wherein said polymer component comprises a  
2     nylon, polysulfone, polyester, polyimide, siloxane, ethylene, vinyl acetate, aryl-ether,  
3     polyutethane, polyisocyanate, polyether, polyester, acrylate, or polyvinyl chloride.

1           4.     The method of claim 2 wherein said conductive particles comprise gold,  
2     silver, palladium, oxide free noble alloys of gold, silver, and palladium, or a noble metal.

1           5.     The method of claim 1, wherein said first solderable cap comprises gold,  
2     nickel, silver, copper, zinc, palladium, platinum, indium, tin, bismuth, or lead.

1           6.       The method of claim 1, wherein said first solderable cap has a width and a  
2 thickness, and said width is about 0.010 inches to about 0.050 inches, and said thickness  
3 is about 0.002 inches to about 0.01 inches.

1           7.       The method of claim 1, wherein said conductive polymer has a width and  
2 a thickness, and said width is about 0.010 inches to about 0.050 inches, and said thickness  
3 is about 0.002 inches to about 0.058 inches.

1           8.       The method of claim 1, wherein said conductive polymer has a resistivity  
2 of less than about 0.05 ohms per centimeter.

1           9.       The method of claim 1, wherein said first solderable cap is a solder ball.

1           10.      The method of claim 1 wherein said bonding comprises placing said  
2 interconnection in contact with said first contact pad and heating said conductive  
3 polymer.

1           11.      The method of claim 1 wherein said bonding comprises:  
2                   applying said conductive polymer in an uncured state on said first contact  
3 pad;  
4                   disposing said first solderable cap in contact with said conductive  
5 polymer; and,  
6                   curing said conductive polymer.

1           12.    A method of forming an electrical connection between two devices,  
2    comprising:  
3                soldering a second solderable cap of an interconnection to a first contact  
4    pad of a first component, wherein said interconnection comprises:  
5                a conductive polymer comprising a polymer component and a conductive  
6    component;  
7                a first solderable cap disposed in contact with said conductive polymer;  
8    and,  
9                said second solderable cap disposed in contact with said conductive  
10   polymer opposite said first solderable cap; and,  
11               soldering said first solderable cap to a second contact pad of a second  
12   component.

1           13.    The method of claim 12, wherein said polymer component comprises a  
2    thermoplastic polymer, a copolymer, or a blend, and said conductive component  
3    comprises electrically conductive particles.

1           14.    The method of claim 13, wherein said polymer component comprises:  
2                a nylon, polysulfone, polyester, polyimide, siloxane, ethylene, vinyl  
3    acetate, aryl-ether, polyutethane, polyisocyanate, polyether, polyester, acrylate, or  
4    polyvinyl chloride.

1           15.    The method of claim 13 wherein said conductive particles comprise gold,  
2    silver, palladium, oxide free noble alloys of gold, silver, and palladium, or a noble metal.

1           16.    The method of claim 12, wherein said first solderable cap and said second  
2 solderable cap comprise gold, nickel, silver, copper, zinc, palladium, platinum, indium,  
3 tin, bismuth, or lead.

1           17.    The method of claim 12, wherein said first solderable cap and said second  
2 solderable cap have a width and a thickness, and said width is about 0.010 inches to about  
3 0.050 inches, and said thickness is about 0.002 inches to about 0.01 inches.

1           18.    The method of claim 12, wherein said conductive polymer has a width and  
2 a thickness, and said width is about 0.010 inches to about 0.050 inches, and said thickness  
3 is about 0.002 inches to about 0.058 inches.

1           19.    The method of claim 12, wherein said conductive polymer has a resistivity  
2 of less than about 0.05 ohms per centimeter.